

I claim:

Sub A4
1. A system of communicating between a master communication device and at least one slave communication device for determining if said at least one slave is within a particular geographic area and for identifying said slave, the system comprising:

a master communication device, said master establishing a field of coverage and initiating a request to determine if there are any slave communication devices within said field of coverage;

at least one slave communication device having a unique binary identification number, said at least one slave receiving said request and sending a response to said master to indicate that said at least one slave is within said field of coverage; and

said master, after receiving said response from said at least one slave, sending a command to said at least one slave for said at least one slave to provide said unique binary identification number, and said at least one slave receiving said command and providing information to said master, said information being representative of bits of said unique binary identification number.

2. The system of claim 1, wherein said at least one slave provides said information representative of bits of said unique binary identification number to said master during a plurality of time windows, each of said plurality of time windows having first and second time periods, said first time period of each time window starting simultaneously with its corresponding time window and ending before its corresponding time window, said second time period of each time window starting after said first time period of each window has ended and said second time period of each time window ending simultaneously with its corresponding time window, said at least one slave providing said information (i) within said first time period of said plurality of time windows to

designate bits having a first binary value, and (ii) within said second time period of said plurality of time windows to designate bits having a second binary value.

3. The system of claim 2, wherein said master sends an acknowledgment to said at least one slave within a predetermined time after receiving information representative of a bit of said unique binary identification number.

4. The system of claim 1, wherein a first set of one or more slaves provides information representative of a bit of said unique binary identification to said master within a first time period of a time window after receiving said command, said first time period starting simultaneously with said time window and ending before said time window, and wherein a second set of one or more slaves provides information representative of a bit of said unique binary identification to said master within a second time period of said time window after receiving said command, said second time period starting after said first time period has ended and ending simultaneously with said time window, and wherein said first set of one or more slaves receive an expected acknowledgment from said master within a predetermined time period after said first set of one or more slaves provide said information representative of a bit of said unique binary identification, and said second set of one or more slaves entering an idle state after not receiving an expected acknowledgment from said master within a predetermined time period after said second set of one or more slaves provide said information representative of a bit of said unique binary identification.

5. The system of claim 4, wherein said time window starts a predetermined time after said command is sent by said master.

6. The system of claim 4, wherein one slave of said first set of one or more slaves provides information representative of bits of said one slave's unique binary identification number to said master during subsequent time windows, each of said subsequent time windows having first and second time periods, said first time period of each said subsequent time window starting simultaneously with its corresponding time window and ending before its corresponding time window, and said second time period of each said subsequent time window starting after said first time period of each said subsequent time window has ended and said second time period of each said subsequent time window ending simultaneously with its corresponding time window, said one slave providing said information bit-by-bit during said subsequent time windows until said one slave's complete unique binary identification number has been provided to said master.

7. The system of claim 6, wherein each of said subsequent time windows begins at a predetermined time after said one slave of said first set of one or more slaves has provided information representative of a bit of its unique binary identification to said master during the immediately prior time window.

8. The system of claim 6, wherein said one slave of said first set of one or more slaves does not respond to subsequent commands by said master to provide a unique binary identification number unless said one slave has left and re-entered said field of coverage.

9. The system of claim 6, wherein each remaining slave in said field of coverage provides its complete unique binary identification number to said master after said one slave's complete unique binary identification number has been provided to said master, each of said remaining slaves providing its corresponding unique binary identification number bit-by-bit during said subsequent time windows, and wherein each of said remaining slaves is determined by said master as still in said field of coverage and commanded to identify itself.

10. In a communication system having a master communication device and at least one slave communication device, a method for determining if said at least one slave is within a particular geographic area and for identifying said at least one slave, said method comprising the steps of:

establishing a field of coverage;

determining if said at least one slave is within said field of coverage, said at least one slave having a unique binary identification number;

sending a command requesting said unique binary identification number of said at least one slave; and

identifying said at least one slave via information representative of bits of said unique binary identification number.

11. The method of claim 10, wherein said information representative of bits of said unique binary identification number is provided during a plurality of time windows, each of said plurality of time windows having first and second time periods, said first time period of each time window

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starting simultaneously with its corresponding time window and ending before its corresponding time window, said second time period of each time window starting after said first time period of each window has ended and said second time period of each time window ending simultaneously with its corresponding time window, and providing said information (i) within said first time period of said plurality of time windows to designate bits having a first binary value, and (ii) within said second time period of said plurality of time windows to designate bits having a second binary value.

12. The method of claim 11, further comprising the step of providing an acknowledgment within a predetermined time after information representative of a bit of said unique binary identification number has been provided.

13. The method of claim 10, further comprising the step of providing an acknowledgment within a predetermined time period after information representative of a bit of said unique binary identification of a first set of one or more slaves has been provided within a first time period of a time window after said command is sent, said first time period starting simultaneously with said time window and ending before said time window, and intentionally withholding an expected acknowledgment when information representative of a bit of said unique binary identification of a second set of one or more slaves has been provided within a second time period of said time window after said command is sent, said second time period starting after said first time period has ended and ending simultaneously with said time window, and further comprising the step of not providing information representative of bits of said unique binary identification numbers of

said second set of one or more slaves during time windows occurring after said acknowledgment has been intentionally withheld.

14. The method of claim 13, wherein said time window starts a predetermined time after said command is sent.

15. The method of claim 13, wherein information representative of bits of the unique binary identification number of one slave of said first set of one or more slaves is provided to said master during subsequent time windows, each of said subsequent time windows having first and second time periods, said first time period of each said subsequent time window starting simultaneously with its corresponding time window and ending before its corresponding time window, and said second time period of each said subsequent time window starting after said first time period of each said subsequent time window has ended and said second time period of each said subsequent time window ending simultaneously with its corresponding time window, said unique binary identification number of said one slave being provided bit-by-bit during said subsequent time windows until said one slave's complete unique binary identification number has been provided.

16. The method of claim 15, wherein each of said subsequent time windows begins at a predetermined time after information representative of a bit of said unique binary identification number of said one slave has been provided during the immediately prior time window.

17. The method of claim 15, further comprising the step of not responding to subsequent



commands to provide the unique binary identification number of said one slave unless said one slave has left and re-entered said field of coverage.

18. The method of claim 15, further comprising the step of providing the complete unique binary identification number of each remaining slave in said field of coverage after said one slave's complete unique binary identification number has been provided, wherein the unique binary identification number of each of said remaining slaves is provided bit-by-bit during said subsequent time windows, and further comprising the steps of determining that said remaining slaves are still in said field of coverage and sending a command requesting the unique binary identification numbers of said remaining slaves.

19. A radio frequency (RF) communication system for determining if at least one object is within a particular geographic area and for identifying said object, said system comprising:

a RF communication device having a transmitter and a receiver, said device generating a RF field of coverage defining said geographic area and transmitting a request signal to determine if there are any objects within said field of coverage;

a tag capable of being affixed to said at least one object, said tag having a transmitter, a receiver and a unique binary identification number, and said tag receiving said request signal and transmitting a response signal to said communication device to indicate that said object is within said field of coverage; and

said device, after receiving said response signal from said tag, transmitting a command to said tag for said tag to send said unique binary identification number, and said tag receiving said

